

REMARKS

By this amendment, claims 1 and 13 have been amended. Thus, claims 1, 3-9 and 13-27 are now active in the application. Reexamination and reconsideration of the application are respectfully requested.

It is initially noted that there are two independent claims currently pending in this application, i.e., claims 1 and 13. Claims 3-9, 21-24 and 27 depend from claim 1, and claims 14-20, 25 and 26 depend from claim 13. Thus, the present application includes a first set of claims, including claims 1, 3-9, 21-24 and 27, and a second set of claims, including claims 13-20, 25 and 26.

In items 5-9 and 14 on pages 2-13 of the Office Action, the Examiner has presented prior art rejections against the first set of claims. In the claims 1, 21-24 and 27 under 35 U.S.C. 103(a) as being unpatentable over either a combination of Park (U.S. 7,100,743) and Goodnight (U.S. 6,457,561), or a combination of Park and Goodnight modified by either Andrione '226 (U.S. 4,493,226) or Khoo (U.S. 5,842,420).

In items 10-13 on pages 7-12 of the Office Action, the Examiner has presented prior art rejections rejecting the second set of claims under 35 U.S.C. 103(a) as being unpatentable over a combination of Park, Andrione '226, Goodnight and Andrione '859 (U.S. 4,386,859), or over such combination* as modified by Khoo.

**It is noted that the rejections set forth in items 12 and 13 are quite confusing. The rejection in item 12 purports to reject claims 15 and 18-20 over Park in view of Andrione '226 and Goodnight '561 as modified by Khoo. However, claims 15 and 18-20 depend from claim 13 which was rejected on the basis of Park, Andrione '226, Goodnight and Andrione '859. Therefore, the basis of the rejection of claims 15 and 18-20 in item 12 of the Office Action is unclear. Similarly, the rejection of claims 16 and 17 in item 13 states that claims 16 and 17 are rejected as obvious over Park in view of Andrione '226 and Goodnight "as applied to claim 13 above." However, claims 16 and 17 depend from claim 13 which, as noted above, was rejected as obvious over a combination of Park, Andrione '226, Goodnight and Andrione '859. Therefore, the basis of the rejection of claims 16 and 17 is also unclear.*

These rejections, as best understood, are respectfully traversed in part, and in any event, are believed clearly inapplicable to the independent claims 1 and 13 as now amended, as well as the dependent claims 3-27, for the following reasons.

Claims 1 and 13 have now each been amended to recite an important feature of the present invention relating to the specific structural arrangement of the vertical holes 45A, 45B. Specifically, these claims now specify that the pair of vertical holes 45A, 45B are functionally independent and have upper ends and lower ends, wherein the upper ends of the vertical holes 45A, 45B open into the enclosed container 18 through an uppermost end surface of the crankshaft 24 (see Fig. 2), and that the lower ends of the vertical holes are connected to the spiral pumps 43A, 43B (i.e., first spiral pumps as recited in claim 13) to fluidically connect the vertical holes 45A, 45B with the spiral pumps 43A, 43B, respectively.

In contrast to the present invention as now recited in each of the independent claims 1 and 13, the Park et al. patent (U.S. 7,100,743) clearly does not disclose the presence of vertical holes that open into the enclosed container 11 through an uppermost end surface of the crankshaft 200. Rather, as illustrated, for example, in Fig. 11 of the Park et al. patent, the vertical holes 244a, 244b (referred to as pin oil holes in the Park et al. disclosure) are clearly shown in Figs. 11, 12 and 15 as having their upper ends opening into a concavity (or oil well) formed in the crank pin 230 at the upper portion of the crankshaft 200. In other words, these pin oil holes 244a, 244b of the Park et al. configuration are communicated with each other in this concave oil well formed in the top section of the crankshaft. With this configuration, the lubricant oil lifted through the pin holes 244a, 244b will accumulate in the concave oil well prior to being discharged into the container 11. The presence of the lubricant oil (i.e., due to its weight) in the concave oil well will inhibit the upward flow of the lubricant oil through the pin oil holes 244a, 244b, and therefore, the amount of lubricant oil that is discharged, scattered and supplied to the respective sliding sections is reduced in the Park et al. configuration. Furthermore, due to this decrease in the amount of lubricant oil lifted up through the pin oil holes 244a, 244b, the amount of the lubricant oil lifted-up via the shaft oil hole 241 and the helical grooves 243a, 243b is also

decreased. Thus, the overall amount of lubricant oil supplied to the respective sliding sections by the shaft oil hole 241 and the helical grooves 243a, 243b, as well as the pin oil holes 244a, 244b, is decreased. In the present invention as recited in claims 1 and 13, however, vertical holes 45A, 45B are functionally independent from their lower ends to the upper end surface of crankshaft 24, and open into the enclosed container 18 so as to be independent from each other. Therefore, the lubricant lifted-up through the vertical holes 45A, 45B is discharged from the upper end of the crankshaft 24 into the enclosed container 18 and supplied to the respective sliding sections. The lift-up flow of this lubricant oil through the vertical holes 45A, 45B is not inhibited as in the Park et al. arrangement, since the oil is not accumulated in a concave oil well as in Park et al. Therefore, the amount of lubricant oil available for scattering and supplying to the respective sliding sections from the vertical holes 45A, 45B, as well as the amount of the lubricant oil supplied to the respective sliding sections from the spiral pumps 43A, 43B, are greater than those of the Park et al. arrangement.

Thus, it is believed apparent that the present invention as recited in claims 1 and 13, and in particular, the aspects discussed above as recited in claims 1 and 13, are not disclosed or suggested in the Park et al. patent. The remaining patents cited by the Examiner (i.e., Goodnight, Androne '226, Androne '859 and Khoo) also do not disclose or suggest this feature as recited in claims 1 and 13. Furthermore, it is submitted that the above-discussed clear distinctions between the present invention of claims 1 and 13 and the Park et al. arrangement are such that a person having ordinary skill in the art would not have found it obvious to modify Park et al. or to make any combination of the references of record in such a manner as to result in or otherwise render obvious the present invention as now recited in claims 1 and 13. Therefore, it is respectfully submitted that claims 1 and 13, as well as the claims depending therefrom, are clearly allowable over the prior art of record.

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is clearly in condition for allowance. An early notice thereof is earnestly solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, it is respectfully requested that the Examiner contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

Koichi TSUCHIYA et al.

/Charles R Watts/

By: 2008.09.09 14:59:53 -04'00'

Charles R. Watts

Registration No. 33,142

Attorney for Applicants

CRW/asd
Washington, D.C. 20006-1021
Telephone (202) 721-8200
Facsimile (202) 721-8250
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